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ABSTRACT

This paper provides a critical review of the behavioral research on film music, indicates that there is a visual bias in media attribute research which needs to be balanced, and provides media producers and instructional developers with a theoretical basis and practical guidelines for using music in audiovisual presentations. The question of film music and its implications for instructional and educational media is dealt with in five major sections: (1) an introduction suggesting that practitioners, researchers, and artists need to focus in different ways on film music and that there is a major dichotomous break between the way film music is considered within entertainment and educational perspectives; (2) an examination of film music functions, specific scoring techniques (including theme song, cartoon scoring, and radio scoring approaches), and additional viewpoints on the aesthetics of music; (3) a discussion of film music as nonverbal communication, with emphasis on nonverbal and multiple channel communication theory; (4) a review and analysis of film music research by John Zuckerman (1949), R. C. Nuckols and R. Abramson (1949), Percy H. Tannenbaum (1956), A. A. Lumsdaine and A. I. Gladstone (1958), John Freeman and Charles O. Neidt (1959), and others; and (5) a conclusion which indicates that affective learning is influenced by music although cognitive learning is not, and suggests various implications of the research for practitioners. A 31-item bibliography is provided. (ESR)

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FILM MUSIC

Implications for Instructional Films and Television

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ABSTRACT

Film music is one component of the total art and science of film communication. Yet film research suffers from a visual bias which leaves the study of film music a virtually neglected field.

In terms of the utilization of film music, an interesting dichotomous situation appears to exist. The Hollywood entertainment industry, on the one hand, acts on the assumption that music makes a key contribution to the total film. On the other hand, producers of educational films tend to see music as a frill, an extra, and an unnecessary embellishment. Often an educational film will not use music at all; other times music will appear only in the front and end titles; and only once in a long while will a composer of the stature of Elmer Bernstein (Ten Commandments; The Magnificent Seven), or the late Dmitri Tiomkin (High Noon, The Alamo) compose an original score for an educational film.

If, as Marshall McLuhan suggests, our medium is our message, then, as researchers, it matters to us whether film music communicates, how it communicates, and what it communicates.

Does film music make a difference to learning from films? Hoban and Van Ormer (1950) say no: "There is little experimental evidence to suggest that musical background has any marked effect on learning from films." Travers (1967) supports that view: "Expermentation suggests that music does not add to the communicative effectiveness of an informational film." And Lumsdaine and Gladstone (1958) even suggest that music makes learning from films less effective!

Yet common sense belies the findings of the sparse early research. Today, media attribute research, coupled with a strong thrust in film music aesthetics, has given the idea of film music a new lease on life.

The definitive review of the potential instructional effects of film music was written by John Zuckerman in 1949. It is thirty years later, and an update is long overdue.

Purpose

The purposes of this paper are:

(1) to provide a critical review of the behavioral research on film music.

(2) to alert researchers that there appears to be a visual bias in media attribute research which needs to be balanced.

(3) to provide the practitioner, whether media producer or instructional developer, with a theoretic basis and practical guidelines for using music in audiovisual presentation.

OUTLINE

The question of film music and its implications for instructional and educational media will be dealt with in five major sections.

1. Introduction: This section will suggest three target audiences... practitioner, researcher, and artist...who need to focus in different ways on film music. It concludes by suggesting that there is a major dichotomous break between the way film music is considered within entertainment and educational perspectives.

2. Film Music Functions: This section will examine how film music is used. Then, several specific scoring techniques will be highlighted, including theme song, cartoon scoring, and radio scoring approaches. Finally, additional viewpoints on the aesthetics of music will be examined. Although this section relies primarily on examples from entertainment film...such examples should be readily familiar and accessible to the reader...instructional implications are also considered.

3. Film Music as Nonverbal Communication: The pupose of this section is to provide a theoretic perspective for the research to follow. The emphasis will be on nonverbal and multiple channel communication theory.

4. Film Music Research: Here, the research tradition in film music will be reported and analyzed.

5. Conclusion: This final section examines the film music research as a whole, then suggests implications for practitioners.

INTRODUCTION

This paper is about film music in instructional media. Film music interfaces with the field of educational media/technology in several very different ways.

First, the practitioner, whether professional media producer, instructional developer, or school division audiovisual production specialist, needs to know whether or not music should be added to his media production. If the answer is yes, then he needs to know how to select music to make the most effective contribution to the final product. In order to make such decisions, the practitioner must be aware of music's potential contributions to film.

Second, the researcher is interested in how educational media works. While film variable studies have been conducted since the 1920's, the specific question of the effectiveness of music in instructional media has been little researched. In general, the film music research is spotty, its focus is random, and its conclusions confusing.

Third, the artist is interested in music as a component which provides an additional aesthetic dimension to the art of the film. It has often been said that art leads science, and this would appear to be the case with film music. Indeed a curious dichotomy appears to exist along the entertainment-educational continuum of film. On the one hand, the entertainment industry has concluded, on intuitive and aesthetic grounds, that music is an integral component of a film presentation. A Hollywood film without music would be unthinkable. After all, music sets the mood, establishes location, and provides an aural backdrop without which a film is simply incomplete. Can anyone imagine James Bond without the driving music of John Barry? Or Star Wars (1977) fought without the musical

assistance of John Williams? Could Frodo live without Leonard Rosenman? Writer Tony Thomas (1973) said it exactly right:

> This is Erich Korngold persuading you that Errol Flynn was really Robin Hood in a previous life, Max Steiner telling you what it was like to be a southern aristocrat and lose the War and a way of life, Miklos Rozsa letting you know how Ray Milland felt on a lost weekend when he craved a drink...If your heart went out to Gary Cooper at High Noon as he waited all alone for those four ex-cons to come and get him, you might give a thought to Dmitri Tiomkin, and if you think that Jennifer Jones really saw the Virgin Mary, then light a candle to the memory of the late Alfred Newman...Joan Fontaine was absolutely right when she felt that Manderley was haunted, but it wasn't the spirit of Rebecca...it was Franz Waxman's music. (p. 18-19)

One side of our dichotomy then: film music is essential to the total picture. The other side of the dichotomy is that music is not necessary. To educators, more often than not, music is an extra, a frill, an unnecessary embellishment. Hoban and Van Ormer (1950) conclude that "...there is little experimental evidence to suggest that musical background has any marked effect on learning from instructional films." (Gerrero, 1969, p. 8)

If, as Marshall McLuhan suggests, our medium is our message, then it matters to us whether or not film music communicates. Our concern should be to determine how it communicates best. If it makes no significant difference, then the use of music should be minimized, at least for educational media. On the other hand, as John Zuckerman (1949) writes:

> Theoretically it is possible that the right kind of music, employed in the proper manner, appropriate to both subject matter and audience, may facilitate learning. If music makes any contribution to learning from the film medium (and this is a hypothesis to be tested), then the problem becomes one of establishing what is right and appropriate. (p. 1)

One objective of this paper is to tell the researcher, the practitioner and the composer about each other. For this reason, a somewhat

eclectic writing style will be followed, as opposed to a more formal approach.

A word about the composer as artist: whatever one chooses to accept as the insturctional function of music in media, it should be also clear that film music operates on a purely aesthetic dimension as well. In the same way that there are classics of music, so there are equally classics of film music. In the entertainment film industry names like Dmitri Tiomkin, Miklos Rozsa, Alfred Newman, John Williams, George Dunning and John Addison indicate the stature that they have attained.

In addition, some of the world's finest composers have been attracted to film...not for its instructional...but for its aesthetic potential. To this group belong names such as Dmitri Shostakovich, Ralph Vaughan Williams, Jean Sibelius, Serge Prokofiev, and Aaron Copland.

Perhaps an initial reaction to instructional film music is that no one will ever run out to the nearest record store to purchase the sound track of "Color Categorizing Behavior of Rhesus Monkeys"; in other words, music for educational films must of necessity be more utilitarian and functional than its entertainment counterpart.

Yet the idea is not as far fetched as it seems. If one counts Shakespeare as being closer to the educational side of that entertainment-educational continuum, then recordings are available; for example, William Walton's scores for Richard III (1956) and Henry V (1945). If documentary films count, then the work of Paul Smith on the Walt Disney "True Life Adventures" series must be singled out. Recordings have been made of Smith's scores for The Living Desert (1953), Secrets of Life (1956), and The Vanishing Prairie (1954). And if government propaganda films count, then Virgil Thompson's work with Robert Flaherty and Pare Lorenz in the 1930's must be mentioned for The Plow That Broke the Plains (1936),

The River (1937) and Louisiana Story (1938). Each of these scores has taken on a life of its own in the concert hall, as a standard of the contemporary orchestral repertoire. And even the classroom film is represented on record, as in the Folkways (FS 3860) recording of Roman Vlad's score for a thirty minute film entitled Picasso (1954).

In short, music does have an aesthetic role in film which may even override any potential instructional function. If we can find evidence of instructional functions as well...and that is one of the purposes of this paper...then one can only be amazed at the lack of attention which researchers have given to this fascinating, challenging and promising media attribute.

FILM MUSIC FUNCTIONS

Composer Elmer Bernstein (1972) writes that "Music is the art that begins where words and images leave off." And his colleague Aaron Copland (1941) complements that statement, saying "Music is like a small flame put under the screen to warm it."

Even in the days of the so-called silent film, music was important. Played originally on a live piano at the local theatre, and later by a full symphony orchestra, music had an integral role to play. Today we can speculate on the specific functions of silent movie music, though such functions are difficult to appreciate by contemporary standards. Certainly music must have helped to intensify the emotional impact of the picture. Second, it provided a sense of continuity. Some writers point out that music was useful to cover the noise of the projector. And others suggest that the human nervous system is unable to tolerate total silence. Music, then, was needed for our psychological well-being.

Today film music serves some of the same functions, as well as several others. Composer Aaron Copland (1957) has listed five basic uses of film music as follows:

1. To create a more convincing atmosphere of time and place.
2. To underline psychological refinements...the unspoken thoughts of a character or the unseen implications of the action.
3. To serve as a neutral background filler.
4. To build a sense of continuity.
5. To underpin the theatrical buildup of a scene and round it off with a sense of finality.

Another writer, Lewis Herman, (1963) lists eleven kinds of film music, reflecting a corresponding number of uses. The terms are self explanatory:

1. informative
2. intensifying
3. psychological
4. chase
5. transitional
6. dialogue displacing
7. foreshadowing
8. identification

9. dramatic
10. atmospheric
11. commenting

Most useful, perhaps, is the distinction suggested by Zuckerman, (1949), in what is probably the most comprehensive review of the potential of music in instructional film. First, dividing music functions into emotional, informative, and integrative categories, Zuckerman then proceeds to elaborate and amplify on each. His final list is reproduced below:

INFORMATIONAL FUNCTIONS:

1. Delineation of personality or of an actor's character.
2. Provision of subjective evaluation for an objective image.
3. Emphasis for action.
4. Telling a story.
5. Recalling past events.
6. Foretelling the future.

EMOTIONAL FUNCTIONS:

1. Establishment of atmosphere or mood.
2. Adding to the emotional tone or mood of incidents.
3. Pointing up dramatic or comic highlights of the film.

CONCEPTUAL AND INTEGRATIVE FUNCTIONS:

1. Unification of dramatic material.
2. Association of ideas.
3. Connection of dialogue sequences.
4. Accompaniment for sequences of silent action.

In the same way, one can also identify very specific approaches to using music.

(a) The theme song. Here the focus is on the use of one theme to illuminate the topic or character. The so-called mono thematic score often consists of endless repetitions and variants of the same song. Usually shunned by "connoisseurs", the mono thematic score has often been used to "save" a bad picture. Actor-turned-director Jerry Lewis epitomizes this attitude in his book The Total Film Maker (1971):

> Whether comedy, drama, love story, or western, everyone tries for a hit song. It can be from the main title, the central musical theme, or simply a song within the picture. It has the potential of selling the film, adding thousands, even hundreds of thousands, at the box office. If it becomes an Academy Award song, it could add a million to the gross receipts. A hit song or theme should be sought after just as avidly as a hit film. (p. 143)

Needless to say, the hit song approach is seldom found in the realm of instructional film.

(b) Cartoon scoring is a style which can be easily identified after watching a few minutes of any animated film. It is characterized by a preponderance of musical detail mirroring precisely its visual counterpart. For example, when a cartoon character slips on a banana peel, the trombones in the orchestra also slide. Perfected by Disney, the technique has appropriately become known as mickey-mousing. Used to excess, it is disdained as poor technique. Educational films sometimes use the mickey-mousing style, especially in documentaries. Paul Smith, mentioned earlier in this paper, is probably the most skilled proponent for the Walt Disney "True Life Adventures" series. Anyone who has ever seen The African Lion (1955), The Living Desert (1953), or The Vanishing Prairie (1954) will readily recall the particular technique. Most Educational films however, neither require nor can afford such a detailed approach.

(c) Radio scoring is so-called because it was developed specifically for the shorter time span of radio over film. A radio composer must make his musical contributions short, but significant. A single powerful chord can reflect danger, shock, indecision, horror, or inform the audience that there is more to come. Short, quick transitions are also typical of radio scoring, and are often important to provide a change of scene or time

which might otherwise not be clear to the audience. Perhaps this radio scoring technique has most direct and obvious application to the educational media.

All of the above have resulted in animated discussions and alternative viewpoints on the aesthetics of film music. Probably more has been written on this aspect of film music than any other aspect of the field, but, like any art form, rules are gained by trial and error, and are, ultimately, highly personal. Composer George Antheil (1968) is critical of the "Rimsky-Korsakoff" style applied to historical films. On the other hand, Miklos Rozsa has endorsed and adapted the romantic style to his own unique sound, resulting in the highly acclaimed scores for the epics Ben Hur (1959) and El Cid (1961). Antheil believes that too many film composers focus on atmosphere, to the detriment of dramatic action and underlying feelings. To meet these goals, he suggests, dissonance is a prime tool.

Outspoken critic Page Cook, (1968), film music columnist for Films in Review is very critical of modern scoring techniques, calling many composers mere "purveyors of noise."

Richard Bazelon, in his critical and personal book Knowing the Score (1975) suggests that five questions are to be asked by the composer before scoring a section of a film. Is it needed? What is it supposed to do? How is it to be utilized? Is there an opportunity to say something NOT on the screen to enhance audience involvement? What kind of music is needed? TV scoring, says Bazelon, has its own specific problems. First, TV has an inferior sound reproduction system. Second, TV production operates on a lower budget than film. Third, like radio before it, TV requires dramatic compression. Fifth, TV has a shorter time span... programs are typically 30 to 60 minutes in length. Sixth, TV endings must be summed up quickly.

Elmer Bernstein (1972) feels that great movie music has all but disappeared. He blames the decline to two factors. First is the current stress on the title song. Bernstein singles out Dmitri Tiomkin's title song for the 1951 film High Noon as the precurser of the unfortunate title song syndrome. The second factor leading to the decline of film music, says Bernstein, is the commercial misuse of jazz, which in turn lead to pop scoring by non-composers and even non-musicians. The beginning of this trend, Bernstein ironically lays at his own doorstep, with his innovative 1955 jazz score for Man with the Golden Arm followed by Henri Mancini's TV success, Peter Gunn (1958).

To review: This section has suggested that film music must be considered in light of its potential functions. Usually these functions are informative, emotional, or integrative. Among the many approaches to film scoring, the monothematic, the cartoon, and the radio scoring techniques were identified. However common these techniques are to the entertainment film industry, they appear to have less utility in the instructional film domain. Finally, comments by Antheil, Rosza, Cook, Bazelon, and Bernstein serve to provide added commentary on how film music operates on an aesthetic plane.

The next section tackles the question from a different theoretic perspective...nonverbal communication theory.

FILM MUSIC AS NONVERBAL COMMUNICATION

All communication is either verbal or non-verbal, or some combination. Harrison (1973) suggests that there are four types of nonverbal communication codes: performance, artifactual, spatio-temporal, and mediatory. Film music falls within the domain of the latter, the mediatory code. By considering film music as nonverbal communication, one can gain additional insights into potential functions and possible problems. The following general characteristics of nonverbal communication have specific relevance to film music.

First, non-verbal communication traditionally operates at a low level of awareness, as opposed to verbal communication. The messages of spoken, written and verbal communication are obvious. But the nonverbal messages of gestures, facial expressions, the clothes we wear, and the food we eat are far more subtle, even subliminal. Film music, too, operates at that low level of awareness. The finding of Nuckols and Abramson (1949) that half of their subjects were not even aware that music had accompanied a film correlates well with the intuitive Hollywood maxim that a good film score is one that is not noticed'. A low level of awareness, indeed'.

Second, in nonverbal communication, there are traditionally a large number of cues available, which, if attended to, will assist the receiver in interpreting the message. Film music similarly is replete with musical cues based upon leitmotif, mickeymouse, developmental, variation, and other techniques which are part of the total message. Part of the art of enjoying a film is the challenge of recognizing what the composer is trying to tell us. On an instructional level, however, the researcher is not interested in such a challenge...he wants to know explicitly when and how music matters.

One example from the entertainment domain will suffice. In Torn Curtain (1966), when Alfred Hitchcock makes his traditional walk-on appearance, composer John Addison helps the audience out, by quoting musically the (then) familiar theme of the Alfred Hitchcock TV series. The value and significance of such a musical cue from the alternative points of view of composer, researcher, and receiver is fascinating to ponder. The composer may not particularly care about the response to his joke...he made it, and that is that. The researcher wants to know how effective the cue was. And from the receiver's point of view, a whole series of questions might be asked: Did he receive the cue? If not, we have an example of a missed cue. If he received it and did not understand it, we have a miscue. Or he may have seen, heard, and understood.

Harrison (1973) suggests that a film presentation can be considered as being a multiple channel communication using several bands. Film music relates to the visual band by being redundant, complimentary, or conflicting. Any of these relationships might make for effective communication, if they are perceived as being redundant, complimentary, or conflicting. And an additional problem arises when the music is, in fact, irrelevant. It should be noted that there is a difference between bands being "conflicting" and "irrelevant". In the film Who's Afraid of Virginia Wolf? (1966), a story about a broken marriage, Alex North chose to score, not the conflict, but the idyllic and romantic picture of what could have been. Thus the musical band, by conflicting with the violent visual and verbal bands, provides a comment on the situation in the story. On the other hand, when Ravi Shankar uses the sitar as background for the film Charley (1968) , a story of modern psychology in America, one suspects that his choice was tempered, not by the constraints of

the plot, but more by his own cultural milieu. If such is the case, then music in that film is most likely "irrelevant." In other words, a sitar probably does not belong in a film about contemporary America.

Two other nonverbal researchers, Ruesch and Kees (1956) have suggested the use of the terms "digital" and "analogic" to distinguish the two major classes of information channels available to film. Pryluck and Snow (1967) suggest a six part classification: audioverbal, audionnonverbal, audioparaverbal, video verbal, video nonverbal, and video paraverbal. The digital channels are audio verbal (the actual words used in narration or dialog) and video verbal (any printed words which appear on the screen). The analogic channels are the audio nonverbal (sound effects and music), audio paraverbal (inflections and intonations of the spoken word), video nonverbal (the standard visual component of a film), and video paraverbal (embellishments of the printed word). Pryluck and Snow point out that each of the six channels are capable of transmitting independent sets of information. The interaction which results in a message being sent and received involves a complex relationship among all six channels.

At least two questions arise from the above discussion. First, does one or more of the six channels most often present the critical information? Under what conditions can music be expected to carry the critical information? And second, what is the nature of the differences between channels. Hsia, in writing on channel effectiveness (1961) suggests the following differences between audio and video channels:

AUDITORY CHANNEL	VISUAL CHANNEL
Temporal in nature	spatial in nature, excepting TV and motion pictures which are also temporal
Sequential presentation	sequential and simultaneous presentation
Poor referability	good referability, but TV and film have poor referability
Fewer dimensions in information coding	numerous dimensions in information coding
Greater flexibility; variations in connotations;	restricted flexibility
Less versatility	More versatility
More attention demanding	less attention demanding
More resistant to fatique	less resistant to fatique

In summary, additional perspectives with regard to the theoretic functioning of film music may be obtained by an examination of non-verbal communication theory, and the concepts of multiple channel communication. To date, however, no systematic attempt to relate these studies to film music have been attempted. It would appear to be a fruitful area for future exploration.

FILM MUSIC RESEARCH

The purpose of music in entertainment films is just what the director (or composer) says it is...neither more nor less. But what about educational films? The purpose of educational films is to teach...and music, either does, or does not play a role within that function. This section will examine the behavioral research which has focused upon music in educational film. Curiously, although numerous studies have examined many film variables, less than a dozen studies in thirty years have concentrated on film music. This neglect seems to parallel a similar neglect in the aesthetic literature, where, while there is an abundance of literature on the other film attributes...there is likewise a dearth of material on music. Perhaps this is due in part to the fact that film is usually thought of as a visual medium, rather than an audiovisual medium. Berg (1975) suggests several reasons why such a "visual bias" exists. First, historical development was such that the "moving picture" came first, and critical analyses focused on the visual element. Second, many artists and critics were initially afraid of sound, and were convinced that it was a passing fad. But even as sound became standard, critical discussion remained on the cinematic qualities. Third, the "myth of the director" has resulted in a theory which places the director as "the film's pre-eminent creator, architect, and author." (p. 3) As a result, the film composer must take a back seat. And fourth, music has a special vocabulary, different from the vocabulary of film. All of these factors, then, combine to produce a visual bias in film studies. That bias is certainly extended into educational films as well.

Nevertheless, research does exist on film music in educational film. C. R. Carpenter records some of the early efforts:

> The question of the contribution of music in instructional and informational films was raised during a Research Planning Conference of the Instructional Film Research Program in September, 1947. Also, the question of whether or not to use musical introductions, musical backgrounds and terminal music was discussed in a later conference with the staff of the Navy Photographic Center.
>
> Shortly after the Instructional Film Research Program was initiated in August, 1947, it was found to be practical to produce two versions of a sound film subject which was being edited, one version with, and another without musical accompaniment. Work on this research project raised numerous problems and led to the general conviction that there have not been clear definitions of the hypothetical functions which music is supposed to serve when used in instructional and informational films.
>
> (Zuckerman, "Forward", 1949)

Zuckerman (1949)

Apparently as a result of these questions, John Zuckerman prepared a state-of-the-art paper. Although written some thirty years ago, it remains the most significant statement on the problems and needs and potential of film music research. In the words of the author:

> One of the problems which has been defined for investigation is that of the use of music in films which are designed for training men, for communicating ideas and concepts, for changing viewpoints and attitudes...in brief, for learning. (p. 1)

The major part of Zuckerman's discussion is given over to an examination of potential functions of film music. However, a final section deals with applications to learning from film, with functions of music to be examined in terms of principles of learning. Five potential functions of music in instructional films are identified:

1. Perceptual direction ("...an initial set for attention... a pointer to direct attention...attention aid...memory reinforcement..."
2. Motivational aid ("...provision of an emotional tone to the learning experience...")

3. Conceptual aid ("...clues for inferential thinking by association...providing continuity and closure...")

4. Memory reinforcements

5. Attitude and opinion determiners ("...secure favorable attitudes towards the visual and auditory material..."

(p. 12-13)

Nuckols and Abramson study (1949)

Two versions of a film, We Make a Fire, were prepared. One version contained a continuous musical accompaniment, while the second contained music for front and end titles only. Target population was grade three, four, and five pupils. No significant differences were found between the two versions.

> No difference was found in informational learning or in expressed attitudes between either version. Only 55% of the pupils who saw the "music" version recognized afterwards that music had accompanied the film throughout, and 62% of those who saw the version with introductory and end music only recognized later that music was absent throughout the main part of the film.
>
> (Hoban and Van Ormer, p. 8-29)

Unfortunately the writer of this paper has been unable to obtain a complete copy of the Nuckols and Abramson study, so it is difficult to make any valid comments. Nevertheless, the study shows that music per se is not enough, or at least, may not be enough.

Tannenbaum study (1956)

Six versions of a television play were produced. Versions one, two and three were produced without music, while four, five and six were produced with music. Version one was a live stage play. Version two was an adaptation of the stage play for television with two cameras, and utilizing standard television techniques of close-ups, superimpositions, camera angles, etc. Version three was a single camera recording of the

stage play. Versions four, five and six were similar to versions one, two and three, respectively, but with the addition of a continuous musical score "selected by a person who had considerable experience in this kind of work, and was judged as being appropriate to the present drama by a panel of four experts." (p. 96)

Attitudes were evaluated via the semantic differential technique of Osgood, along evaluative, potency, and activity factors. The results showed that music had a significant effect on the potency and activity factors, but not on the evaluative. Tannenbaum concludes:

> The addition of music background exercises a significant effect on the judgment of the potency of the play, making the play appear much stronger in each of the three versions ...On the activity dimension, only the music background proves to be statistically significant...the incorporation of background music causes the play to be judged more active than without music...Music background, then, can be considered to have an influence on the rating of the drama, with this influence being most pronounced on the connotative dimensions of potency and activity, but not to a significant degree in terms of changing the evaluation of the play. (p. 98-99)

The results are extremely interesting, and encouraging for those who feel that music should make a difference. Two comments are necessary. First, there seems to be some misinterpretations of this study in the subsequent literature. In two different sources, this writer has come across statements concluding that Tannenbaum has found no significant differences for music. Such is certainly not the case. Second, the lack of significance on the evaluative dimension is curious in light of a well-worn Hollywood convention that, if you have a bad picture, music can still save it. Indeed, the folklore of the motion picture records more than one film which was "saved" by a musical score. These cases would appear to be very obviously "evaluative" in their direction, and bear further study.

Lumsdaine and Gladstone Study (1958)

Music was not the main focus of the Lumsdaine/Gladstone study; rather the focus was on overt practice and audiovisual embellishments. Two factors were thus manipulated; this summary will only concentrate on the music component. The stimulus material was an army filmstrip to teach the phonetic alphabet used in military communication to reduce confusion in radio transmissions. Two versions were produced, a "fancy" version and a "plain" version. The authors describe the "fancy" version as follows:

> "Each word appeared on the screen accompanied by a cartoon illustrating it. Appropriate music was heard as the various words were shown, and for sixteen of the twenty-six words the narrator made a comment, usually humorous..." (p.)

The plain version simply showed the word, while the announcer pronounced it. Comparison of plain and fancy versions were not statistically significant, although the authors report a trend favoring the plain version in eleven of sixteen cases. They comment on their findings:

> The producers of the original version of the slide film evidently believed that the musical accompaniment and the humorous cartoons and comments used to present the material would make the film a better teaching device than unadorned presentation of the material. This could have been accomplished if (1) these devices had served to attract attention to the learning task, making the audience tackle it more actively than they would have otherwise, or (2) if the devices had served as memory aids...
>
> Why should music and humor have any detrimental effects? The hypothesis that immediately suggests itself is that they do indeed serve as attention-getters, but that their net effect is to draw attention away from rather than toward the essentials of the learning task. (p. 68)

Freeman and Neidt study (1959)

One rule of thumb which is often used in film scoring is that music should be unfamiliar to the listener. Lindgren writes:

> The use of well-known music is even more distracting and has the additional disadvantage that it often has certain associations for the spectator which may conflict entirely with the associations the producer wishes to establish in his film. The use of classical music for sound films is entirely to be deplored.
> (Freeman & Neidt, p. 91)

Freeman and Neidt determined to test this pronouncement as a research hypothesis. Two versions of a film were developed. Version one contained unfamiliar music selected from a commercial film music source, while version two contained familiar music selected from the classics.

> One group of ninety three subjects saw the film with familiar background music. The other group of ninety three subjects saw the film with unfamiliar background music. Immediately after the showings, both groups were given a twenty-five item multiple choice test covering the informational content of the film. Both groups also took a musical literacy test and vocabulary test, the results of which were used as control variables. When the analysis of covariance was applied to the data obtained from this investigation, no significant difference was found between the film test means of the two groups.
> (p. 95)

While no differences in cognitive learning appeared in this study, one can nevertheless extrapolate to situations on attitudinal and connotative dimensions which could seriously affect the creditibility of a film. Consider, for example, the case of the 1962 Hollywood epic Taras Bulba, a classic story by Mykola Hohol (Gogol) about the Ukrainian Cossacks. To a general audience, a scene of cossack merriment accompanied by frenzied dancing might seem totally appropriate. But what about the city of Winnipeg, Manitoba, in Canada, where, after English, Ukrainian is the second most prevalent language? How would these individuals react, brought up on a tradition which portrays the cossacks as a bulwark

of freedom against encroaching Russian armies? And how, particularly, would they react, when Hollywood portrays these same cossacks dancing and celebrating to the strains of a well-known Russian folk song? In short, if the audience knows the music, past associations may be too strong to break. In the case of 2001: A Space Odyssey (1968) which uses Straus' Blue Danube Waltz as a backdrop for a space station, the result is, to some, incongruous, perhaps humorous.

Recent Film Music Studies

Since the initial flurry of activity (relatively speaking), there have been three doctoral dissertations dealing specifically with film music.

Schwartz (1970) investigated the effect of manipulating a musical sound track upon changes in attitudes towards militarism and pacifism. His target audience was grade ten social studies students. The study is plagued with methodological weaknesses, so the conclusions must be tempered with caution. Nevertheless, Schwartz found that "students exposed to non-verbal visual communications with an anti-war theme accompanied by a non-verbal sound track which was supportive, became significantly more pacifist after exposure to the communication." (p. 44)

"Music as a film variable" was the topic of R. Gerrero's 1969 Ph.D. dissertation from Michigan State University. The general focus of the study was based upon the assumption that the effectiveness of film music is dependent upon the congruency between channels, and the relative structure of the two message components. Using Osgood's semantic differential technique, Gerrero was able to find much evidence for systematic music influence:

> The broadest generalization is that music appears to exercise considerable influence when made to co-exist with a film scene. The influence is systematic and to a great extent it can be predicted with Osgood's point of resolution formula. Overall, the film component has a greater influence on the film with music combination than does the music component. This influence however, varies considerably between examples...the relative influence of the separate components seem to be highly dependent upon the degree of congruency existing between the two components. Structure, which is an assessment of viewer consensus, also affects component relationships, but to a lesser degree. (p. 63)

In 1974 Rink attempted to investigate "the effects of background music in a dramatic television presentation on university students' perception and retention of the presentations' cognitive content." The researcher used five versions of a play presented on videotape. One version had no music, while the other four versions used different background music treatments. The results showed no significant differences between any of the treatment groups, and no significant differences between music and no music treatments.

CONCLUSION

The purpose of this section is to try to pull together any loose ends which may have been left dangling from previous sections. In particular, there are two items which require further comment. First, it is necessary to provide a summary which attempts to examine the research reported earlier as a totality, rather than as separate entities. Second, it is necessary to bring the discussion back full circle to those who might use music in educational media, namely, the practitioners. For those individuals, an attempt will be made to translate the research and theory into specific practical applications.

In looking at the film music research in its entirety, one is immediately struck by several points. First, the lack of any systematic attention to the film music variable is appalling. Six studies in thirty years is simply not enough. Perhaps the future will see greater concentration on this media attribute. Second, it would appear to be a misperception that film music makes no difference to the final product. Lumsdaine and Gladstone (1958) found no significant differences between their "plain" and "fancy" versions but their research does not allow us to determine which aspect of the "fancy" version was operative, since humor, music, and visual embellishments were part of a total package. Freeman and Neidt (1959) found no significant differences between familiar and non-familiar music, but we have no way of evaluating the appropriateness of their musical selections. On the other hand significant differences for a musical treatment were obtained by Shwartz (1970), Gerrero (1969), and Tannenbaum (1956) on affective dimensions.

In short, the results of the few studies is simply not enough to provide any concrete data, although the trend would appear to be supportive of film music at this stage.

What about applications of film music research to instructional film productions? Given the state-of-the-art, what can be said confidently? It should be clear by now that any generalizations must be considered only tentative. But based on the best guesses from a combination of theory, research, and practice, here are a list of key questions, and potential answers:

1. Should music be used in an educational/instructional film presentation? The question implies that the music will be good music and effective music. Then, aesthetically, music seems to provide information which results in a better communication effort. On the other hand, behavioral research is mixed in its conclusions. It would appear that cognitive learning is not influenced by music, while affective learning...certainly affective perception...is very much influenced by music...particularly along the potency and activity dimensions of Osgood's semantic differential.
2. What kind of music should be used? Freeman and Neidt suggest that it may not matter whether the music is familiar or unfamiliar to the viewer. However, the aesthetic tradition suggests that music should be unfamiliar to the receiver so as to avoid unnecessary connotations. Balance theory within communication studies would tentatively support the aesthetic viewpoint.
3. How should music be employed? The practitioner/producer should be aware of the potential functions which music may serve, and proceed to incorporate music accordingly. It would appear then that an individual with knowledge of music, learning theory, and the film music tradition would be most suited to this role.
4. Does music have a place in educational films? Definitely.

5. Is there a difference in the use of music for educational and entertainment films? The difference is only one of degree. Entertainment films typically have a larger budget and can therefore demand the best. Educational films more often are shot on a shoestring. Another difference -- originally composed scores are most often found in entertainment films, while educational films resort most often to canned film music libraries. One might add, that if originally composed music is wanted for instructional films, many universities have music departments with both professional and student composers who would jump at the chance to experiment within the rigid constraints demanded by film production.

To conclude, common misperception would have us believe that music in films makes no difference. This paper has attempted to explore that premise in the light of behavioral research, of nonverbal communication theory, and of the artist's intuitive common sense. And indeed, it would appear that music in educational media can make a difference, but that its proper use is elusive, difficult and rare.

Our general conclusion must be that film music matters. Good film music matters very much. Research tentatively supports it; theory endorses it; common sense believes it; and aesthetics demands it.

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